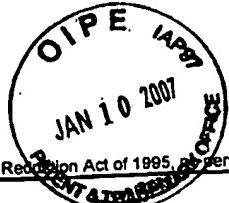


Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.



Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

5

**Complete if Known**

Application Number	10/771,331
Filing Date	February 5, 2004
First Named Inventor	Orlawn MASSLER
Art Unit	1762
Examiner Name	K. Stouffer
Attorney Docket Number	080313.48830D1

**U.S. PATENT DOCUMENTS**

Examiner Initials'	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)	(if known)			
/KMS/	AA	US- 4,992,153		02/12/1991	Bergmann et al.	
	AB	US- 5,556,519	A	09/17/1996	Teer	
	AC	US- 5,629,086	A	05/13/1997	Hirano et al.	
	AD	US- 5,695,832	A	12/09/1997	Hirano et al.	
	AE	US- 5,709,784	A	01/20/1998	Braendle et al.	
	AF	US- 5,712,000	A	01/27/1998	Wei et al.	
	AG	US- 5,750,210	A	05/12/1998	Schmidt et al.	
	AH	US- 6,338,881	B1	01/15/2002	Sellschopp et al.	
	AI	US- 6,171,454	B1	01/09/2001	Weber et al.	
	AJ	US- 6,372,303	B1	04/16/2002	Burger et al.	
	AK	US- 2003/0091742	A1	05/15/2003	Forget et al.	
	AL	US- 5,015,494		05/14/1991	Yamazaki	
	AM	US- 4,973,494		11/27/1990	Yamazaki	
	AN	US- 4,869,923		09/26/1989	Yamazaki	
	AO	US- 4,877,505		10/31/1989	Bergmann	
	AP	US- 6,171,454	B1	01/09/2001	Weber et al.	

Examiner Signature

/Kelly Stouffer/

Date Considered

03/29/2007

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO  INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (use as many sheets as necessary)			Complete if Known		
			Application Number	10/771,331	
			Filing Date	February 5, 2004	
			First Named Inventor	Orlaw MASSLER	
			Art Unit	1762	
			Examiner Name	K. Stouffer	
Sheet	2	of	5	Attorney Docket Number	080313.48830D1

FOREIGN PATENT DOCUMENTS							
Examiner Initials'	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
/KMS/	AQ	DD 133688		01/17/1979	Siehe		
	AR	DE 195 13 614 C1		10/02/1996	Fraunhofer GES Forschung et al.		ABS
	AS	DE 196 35 736 C2		03/05/1998	Saxonia Umformtechnik GmbH	Corresponds to AH	ABS
	AT	DE 197 40 793 A1		03/18/1999	Robert Bosch GmbH	Corresponds to AI	ABS
	AU	DE 198 26 259 A1		12/17/1998	Robert Bosch GmbH	Corresponds to AJ	ABS
	AV	DE 199 60 092 A1		07/12/2001	Robert Bosch GmbH	Corresponds to AK	ABS
	AW	DE 38 76 120 T2		06/24/1993	Semiconductor Energy Laboratory Co., Ltd.	Corresponds to AL, AM & AN	ABS
	AX	DE 41 26 652 A1		02/18/1993	Krupp Widia GmbH		ABS
	AY	DE 43 43 354 A1		06/22/1995	Robert Bosch GmbH		
	AZ	EP 0 306 612 A1		03/15/1989		Corresponds to AO	
	BA	EP 0 413 291 B1		02/20/1991	Hauzer Holding B.V.		
	BB	EP 0 413 853 B1		02/27/1991	Balzers Hochvakuum		ABS
	BC	EP 0 577 246 A1		01/05/1994	ISM Technologies, Inc.		
	BD	EP 0 600 533 A1		06/08/1994	V.I.T.O.		ABS
	BE	EP 0 962 550 B1		12/08/1999	V.I.T.O.		ABS
	BF	FR 2 596 775 A1		10/09/1987	Universite De Limoges		ABS
	BG	JP 10 137861 A		05/26/1998	Sky Alum Co., Ltd.		ABS
	BH	WO 90/02216 A1		03/08/1990	VAC-TEC SYSTEMS, INC.		
	BI	WO 95/04368 A1		02/09/1995	INSTITUTE OF PHYSICS ACADEMY OF SCIENCES OF THE CZECH REPUBLIC		
	BJ	WO 97/34315 A1		09/18/1997	Balzers Aktiengesellschaft	Corresponds to AE	ABS
	BK	WO 99/14390 A3		03/25/1999	Robert Bosch GmbH	Corresponds to AQ	ABS
	BL	WO 99/27893 A2		06/10/1999	Teer Coatings Limited		

Examiner Signature	/Kelly Stouffer/	Date Considered	03/29/2007
--------------------	------------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				<b>Complete If Known</b>	
				Application Number	10/771,331
				Filing Date	February 5, 2004
				First Named Inventor	Orlawa MASSLER
				Art Unit	1762
				Examiner Name	K. Stouffer
				Attorney Docket Number	080313.48830D1
Sheet	3	of	5		

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/KMS/	BM	K. TAUBE, "Carbon-based coatings for dry sheet-metal working", Elsevier Science S.A., Surface and Coatings Technology, 1998, vol. 98, pp. 976-984	
	BN	A. A. VOEVODIN et al., "Design of a Ti/TiC/DLC/ functionally gradient coating...", Elsevier Science S.A., Thin Solid Films, 1997, Vol. 298, pp. 107-115	
	BO	Y. LIFSHITZ, "Diamond-like carbon - present status", Elsevier Science S.A., Diamond and Related Materials, 1999, Vol. 8, pp. 1659-1676	
	BP	ALFRED GRILL, "Diamond-like carbon: State of the art", Elsevier Science, S.A., Diamond and Related Materials, 1999, Vol. 4, pp. 428-434	
	BQ	J. DENG et al., "DLC multilayer coatings for wear protection", Elsevier Science S.A., Diamond and Related Materials, 1995, pp. 936-943	
	BR	W. HEINKE et al., "Evaluation of PVD nitride coatings, using Impact, scratch and Rockwell-C adhesion tests", Elsevier Science S.A., Thin Solid Films, 1995, Vol. 270, pp. 431-438	
	BS	K. Y. LI et al., "Mechanical and tribological properties of diamond-like carbon films prepared on Steel by ECR-CVD process", Elsevier Science S.A., Diamond and Related Materials, 2001; Vol. 10, pp. 1855-1861	
	BT	T. MICHLER et al., "Mechanical properties of DLC films prepared by bipolar pulsed DC PACVD", Elsevier Science S.A., Diamond and Related Materials, 1998, Vol. 7, pp. 1333-1337	
	BU	B. ORAL et al., "Adhesion and structural changes of multi-layered and multi-doped a-C:H films during annealing ", Elsevier Science S.A., Diamond and Related Materials, 1996, Vol. 5, pp. 932-937	
	BV	M. GRISCHKE et al., "Variation of the wettability of DLC-coatings by network modification using silicon and oxygen", Elsevier Science S.A., Diamond and Related Materials, 1998, Vol. 7, pp. 454-458	
V	BW	M. GRISCHKE et al., "Application-oriented modifications of deposition processes for diamond-like carbon based coatings", Elsevier Science, S.A., Surface and Coatings Technology, 1995, Vol. 74-75, pp. 739-745	

Examiner Signature	/Kelly Stouffer/	Date Considered	03/29/2007
--------------------	------------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered.

Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.  
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO  INFORMATION DISCLOSURE STATEMENT BY APPLICANT  (use as many sheets as necessary)		Complete if Known	
		Application Number	10/771,331
		Filing Date	February 5, 2004
		First Named Inventor	Orlaw MASSLER
		Art Unit	1762
		Examiner Name	K. Stouffer
Sheet	4	of	5
Attorney Docket Number 080313.48830D1			

## NON PATENT LITERATURE DOCUMENTS

/KMS/	BX	T. MICHLER et al., "Continuously deposited duplex coatings consisting of plasma nitriding and a-C:H:Si deposition", Elsevier Science S.A., Surface and Coatings Technology, 1999, Vol. 111, pp. 41-45	
	BY	PHILIP M. RICE et al., "Correlation of Nanoindentation and Conventional Mechanical Property Measurements", IBM Almaden Research Center, San Jose, CA, USA/Oak Ridge National Laboratory, Oak Ridge, TN, USA	
	BZ	T. MICHLER et al., "DLC Films deposited by bipolar pulsed DC PACVD", Elsevier Science S.A., Diamond and Related Materials, 1998, Vol. 7, pp. 459-462	
	CA	K. TAUBE et al., "Improvement of carbon-based coatings for use in the cold forming of non-ferrous metals", Elsevier Science S.A., Surface and Coatings Technology, 1994, Vol. 68-69, pp. 662-668	
	CB	D. HOFMANN et al., "Plasma-booster-assisted hydrogenated W-C coatings", Elsevier Science S.A., Surface and Coatings Technology, 1995, Vol. 73, pp. 137-141	
	CC	U. MUELLER et al., "Pores in hydrogenated amorphous carbon films on stainless steel", Elsevier Science S.A., Surface & Coatings Technology, 1995, Vol. 71, pp. 233-238	
	CD	C. DONNET, "Recent progress on the tribology of doped diamond like and carbon alloy coatings: a review", Elsevier Science S.A., Surface and Coatings Technology, 1998, Vol. 100-101, pp. 180-186	
	CE	A. VARMA et al., "Tribological Behaviour of Si-DLC Coatings", Surface Engineering, 1999, Vol. 15, No. 4, pp. 301-306	
	CF	VON H. DIMIGEN, "Neue Ansaezte zur wirtschaftlichen Fertigung optimierter Schichtsysteme", Fraunhofer Institut fuer Schicht - und Oberflaechentechnik IST, Galvanotechnik, Heft 5, 1998	
↓	CG	A. HIEKE, "Diamantaehnliche Kohlenstoffschichten (DLC) – verschleissfest und reibarm", Materialwissenschaften und Werkstofftechnik, 2000, Vol. 31, pp. 625-628	

Examiner Signature	/Kelly Stouffer/	Date Considered	03/29/2007
--------------------	------------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered.

Include copy of this form with next communication to applicant.

<sup>2</sup>Applicant's unique citation designation number (optional). <sup>3</sup>Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete if Known</b>	
				Application Number	10/771,331
				Filing Date	February 5, 2004
				First Named Inventor	Orlaw MASSLER
				Art Unit	1762
				Examiner Name	K. Stouffer
				Attorney Docket Number	080313.48830D1
Sheet	5	of	5		

**FOREIGN PATENT DOCUMENTS**

/KMS/	CH	"Hardness Conversion Chart", NDT Resource Center, Hardness Testing, ASM Internationals, Metals Park, OH, 1987
	CI	VON U. MUELLER et al., "Ultrahartstoff-Beschichtungen aus Kohlenstoff", Oberflaechen Werkstoffe
	CJ	T. KRUMPIEGL, (Lehrstuhl fuer Konstruktionstechnik) "Vermeidung von Schmierstoffen in Gelenklagern durch PVD-Beschichtungen", Bundesministerium fuer Bildung, Wissenschaft, Forschung und Technologie, Abschlussbericht 1997
	CK	"Produktnamenverzeichnis-Kohlenstoffschichten", Fraunhofer Institut fuer Schicht und Oberflaechentechnik, 2006
	CL	A. HAMMER et al., "Physikalische Formeln und Tabellen", J. Lindauer Verlag, 5., Seite 42-43, Auflage, 1992
	CM	RENÈ A. HAEFER, "Oberflaechen - und Duennschicht-Technologie", Teil 1, Springer-Verlag Berlin Heidelberg New York, 1987
	CN	"Metallic and other inorganic coatings – Vickers and Knoop microhardness tests", Mikrohaetepruefungen nach Vickers und Knoop, DIN EN ISO 4516, pp. 1-16 (2002)
	CO	"Coating (CVD, PVD) of cold forging tools", Beschichten von Werkzeugen der Kaltmassivumformung CVD-und PVD-Verfahren, VDI 3198, pp. 1-8 August 1992
↓	CP	"PVD and CVD hard coatings – quality assurance Inspection planning of hard coatings", Qualitaetssicherung bei der PVD – und CVD-Hartstoffbeschichtung, VDI 3824 Blatt 4, S. 12, Abs. 4.4, pp. 1-10 September 1999
	CQ	European Search Report dated September 3, 2003 with an English translation of the pertinent portion (Five (5) pages).

Examiner Signature	/Kelly Stouffer/	Date Considered	03/29/2007
--------------------	------------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered.

Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.